

### AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

Claim 1 (Currently Amended): A device for ~~[[the]]~~ a thermal decomposition of a volatile compound compounds, and deposition of particles which are ~~then~~ formed by said decomposition, comprising:

(a) a pressure vessel ~~(1)~~,

(b) at least one reaction tube located inside said pressure vessel such that ~~(2)~~,

~~the~~ an open end ~~(2e)~~ of ~~which~~ said reaction tube extends into the pressure vessel and

~~the~~ an other end of ~~which~~ said reaction tube is located outside the pressure vessel and is provided with a gas feed ~~(3)~~,

wherein ~~the~~ a longitudinal axis of the reaction tube is oriented in the direction of gravity and parallel to ~~the~~ a longitudinal axis of the pressure vessel ~~(1d)~~, and

wherein the reaction tube can be heated ~~(2a)~~ on ~~the~~ a gas inlet side and cooled ~~(2b)~~ on ~~the~~ a gas outlet side,

wherein the pressure vessel ~~(1)~~, in its lower part, comprises a collection cone ~~(1a)~~,

wherein the open end of the at least one reaction tube ~~(2e)~~ extends into ~~the~~ a gas space of the collection cone ~~(1b)~~,

wherein the collection cone ~~(1a)~~ is connected to an outlet lock ~~(6)~~ for particles ~~(P)~~, and

(c) a gas outlet unit ~~(7)~~ located mainly inside said pressure vessel, which comprises said gas outlet unit comprising

a gas guide (~~7a~~),

a gas inlet region,

wherein the gas inlet region (~~7b~~) is in communication with the gas

space (~~1b~~) of the collection cone (~~1a~~),

a filter system (~~8~~), and

a gas outlet (~~9~~), which is located outside the pressure vessel.

Claim 2 (Original): The device as claimed in claim 1, wherein the outer walls of the pressure vessel (~~1~~) are coolable (~~1e~~).

Claim 3 (Currently Amended): The device as claimed in claim 1, wherein the at least one reaction tube (~~2~~) has a length of from 60 to 700 cm.

Claim 4 (Currently Amended): The device as claimed in claim 1, wherein the at least one reaction tube (~~2~~) has a diameter of from 30 to 400 mm.

Claim 5 (Currently Amended): The device as claimed in claim 1, wherein the at least one reaction tube (~~2~~) comprises a material selected from the group consisting of metal, silicon nitride, silicon carbide, Si-infiltrated silicon carbide, and quartz glass.

Claim 6 (Currently Amended): The device as claimed claim 1, wherein the at least one reaction tube (~~2~~) is sheathed by an electrical resistance heating means (~~4~~) on the gas inlet side.

Claim 7 (Currently Amended): The device as claimed in claim 1, wherein the at least

one reaction tube (2) is surrounded (2b) by a cooling unit (5) toward its open side (2e).

Claim 8 (Currently Amended): The device as claimed in claim 1, wherein the at least one reaction tube (2) can be heated over 30 to 70% of its length.

Claim 9 (Currently Amended): The device as claimed in claim 1, which comprises from 2 to 36 reaction tubes (2).

Claim 10 (Currently Amended): The device as claimed in claim 1, wherein the outlet lock (6) comprises a double-flap system (6a, 6b).

Claim 11 (Currently Amended): The device as claimed in claim 1, wherein the filter system (8) comprises one or more filter candles.

Claim 12 (Currently Amended): The device as claimed in claim 11, wherein the one or more filter candles comprise a material selected from the group consisting of sintered metal, ceramic, fibers and plastic.

Claim 13 (Currently Amended): The device as claimed in claim 1, wherein the at least one reaction tube (2) and the gas outlet unit (7) are connected to the pressure vessel (1) by water-cooled steel flanges.

Claim 14 (Currently Amended): A process for ~~[[the]]~~ a thermal decomposition of at least one volatile, thermally decomposable compound and deposition of particles ~~which are then~~ formed by said decomposition, using the device as claimed in claim 1, said process

comprising:

heating the at least one reaction tube (2), on the inlet side (~~2a~~), to a temperature greater than or equal to the decomposition temperature of the volatile, thermally decomposable compound,

cooling the lower region (~~2b~~) of the at least one reaction tube (2),

optionally, diluting the volatile, thermally decomposable compound with a gas or gas mixture,

feeding the volatile, thermally decomposable compound into the at least one reaction tube (2), via the corresponding gas feed (~~3~~),

decomposing the volatile, thermally decomposable compound to form the particles (P) and at least one gas (G),

gathering the particles (P) in the collection cone (~~1a~~), and

discharging the gathered particles (P) via the outlet lock unit for the particles (~~6~~),

wherein the at least one gas (G) formed during the decomposition reaction is discharged via the gas outlet (~~9~~), with the pressure in the pressure vessel (1) being kept substantially constant.

Claim 15 (Currently Amended): The process as claimed in claim 14, wherein the ~~the~~ inlet side (~~2a~~) of the at least one reactor (2) is heated to a temperature which is above the decomposition temperature of ~~[[the]]~~ a substrate.

Claim 16 (Currently Amended): The process as claimed in claim 14, wherein the lower region (~~2b~~) of the at least one reaction tube (2) is cooled to a temperature of  $\leq 100^{\circ}\text{C}$ .

Claim 17 (Currently Amended): The process as claimed in claim 14, wherein

monosilane, undiluted, is fed to the at least one reaction tube ~~(2)~~.

Claim 18 (Currently Amended): The process as claimed in claim 17, wherein the particles ~~(P)~~ are a high-purity silicon powder ~~(P)~~, and wherein the particles ~~(P)~~ are discharged from the collection cone ~~(5)~~ in batches via the outlet lock ~~(6)~~.

Claim 19 (Previously Presented): The process of claim 15, wherein the volatile thermally decomposable compound is  $\text{SiH}_4$ , and wherein the temperature is from 800 to 1100°C.

Claim 20 (Previously Presented): The process of claim 14, comprising diluting the volatile, thermally decomposable compound with a gas or gas mixture, wherein the gas or gas mixture comprises hydrogen.